IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

KERR MACHINE CO., Plaintiff, v. VULCAN INDUSTRIAL HOLDINGS, LLC, VULCAN ENERGY SERVICES, LLC, and CIZION, LLC d/b/a VULCAN INDUSTRIAL MANUFACTURING, Defendant.	CIVIL ACTION NO. 6:20-CV-200-ADA JURY TRIAL DEMANDED

Plaintiff's Opening Claim Construction Brief

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In accordance with the Court's Agreed Scheduling Order (Dkt. 34), Plaintiff Kerr Machine Company ("Kerr") submits this Opening Claim Construction Brief ("Opening Brief") regarding disputed claim terms in U.S. Patent No. 10,591,070 ("the '070 Patent") (attached as Exhibit 1).

I. Introduction

Though Vulcan initially proposed 14 terms for construction, the parties were able to compromise and reduce the number to seven disputed terms: (1) "tubular sleeve," (2) "endless groove," (3) "therethrough," (4) "within the sleeve," (5) "the seal is engaged with the outer surface of the sleeve," (6) "seal," (7) "closure element." In addition to the seven terms, Vulcan also seeks an advisory ruling on the patentable weight of the term "fluid end assembly," despite neither party seeking a construction on the term and Kerr not relying on the term for its infringement contentions.

The Court should reject Defendants' proposed constructions because they improperly import imprecise or unnecessary limitations into the claims that have no basis in the intrinsic evidence.

II. Summary of the Patented Technology

The '070 Patent, titled "Sealing High Pressure Flow Devices," issued on March 17, 2020. The '070 Patent is generally directed to sealing fluid flow passages inside flow control devices, such as those used in high pressure oil and gas production and processing systems.

The '070 Patent is directed to problems encountered during the use of fluid ends of a high-pressure, reciprocating plunger pump. Exh. 1 at 1:52–2:7, 7:7–42. When plunger pumps are used in certain oilfield applications, such as pumping fracturing fluid containing abrasive solids ("proppants"), the fluid ends are subject to erosion, resulting in leakage and costly repairs. *Id. at* 1:64–2:11.

Figure 5 of US Patent Application Publication US 2013/0319220 ("Luharuka") is annotated below to illustrate the anatomy and operation of a plunger pump, which is also discussed in Luharuka's written description. Luharuka paragraphs [0020] – [0024].

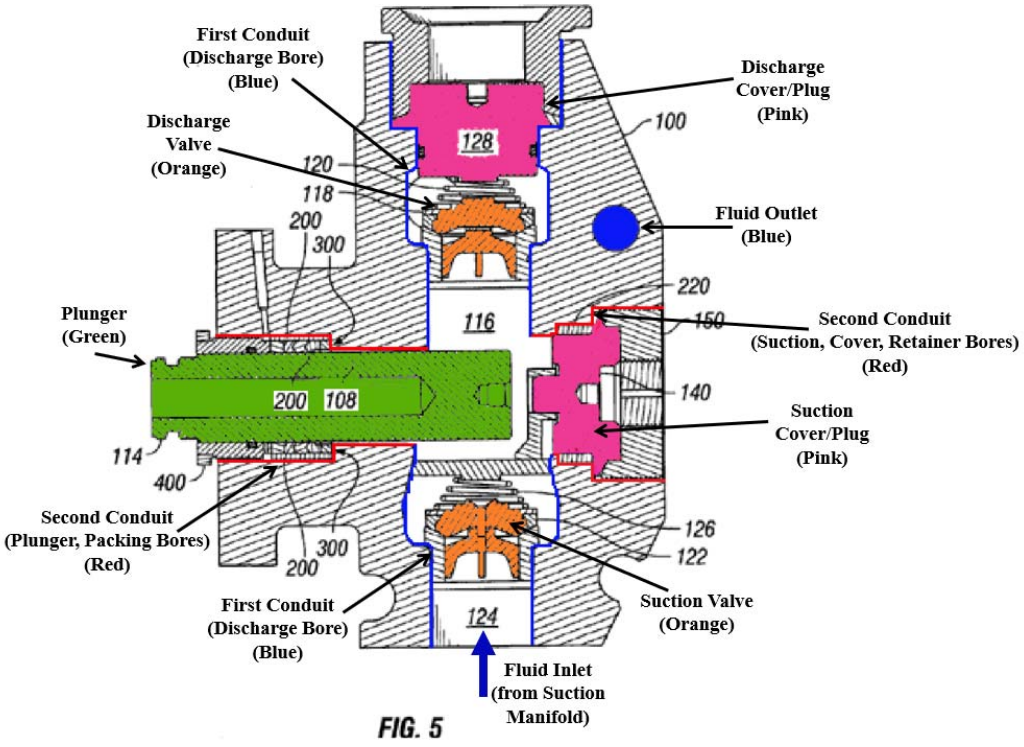


FIG. 5

The fluid end housing (also called the body) has two internal conduits (bores or throughbores). In this type of fluid end, called an "X-bore," or "valve-over-valve" design, the bores pass completely through the housing from one side to the other. This is necessary in order to allow access for maintenance (installation or repair of valves, packing, etc.).

The **first conduit** (vertical) is the discharge bore, which refers to the entire bore. Fluid enters at the fluid inlet (bottom) from a suction manifold (not pictured) and discharges from the **fluid outlet** (top right) via the **discharge bore** and an internal passage that is not depicted. The **second conduit** also passes completely through the housing, forming a single bore which in the industry is referenced as at least two different sections. The **first section** (left) includes the plunger bore, which forms the passage for the **plunger** to travel back and forth, and the packing bore (for

the plunger packing). The **second section** (right) includes the suction bore (also known as the "access bore," because it allows access to the **suction valve**) and the cover and retainer bores. Although there are several different "bores," these are terms of art used to reference a particular location in each conduit; there are actually only two conduits having multiple bores based on function and location. An internal chamber is formed where the two conduits intersect.

On the suction stroke, the plunger retracts and the **suction valve** opens, causing the suction of fluid into the internal chamber from the suction line (not pictured, but connected to the inlet of the discharge bore). In the discharge stroke, the **plunger** pushes forward, causing the **suction valve** to close and pushing the fluid in the chamber out through the **discharge valve**, which opens, allowing the fluid out of the **fluid outlet**. When maintenance is required, the **suction** and **discharge covers** are removed, which allows access to the internal components without (necessarily) removing the **plunger**. Generally, there are seals between the covers and the housing, and between the housing and the plunger, to prevent leaks during operation. The seals which contact the plunger itself are generally referred to as "packing" or "stuffing" in the industry. There are also usually seals between the packing or stuffing enclosure (the packing box or stuffing box) and the housing. As discussed in the '070 Patent, there are many ways to design and seal this enclosure, including the stuffing box sleeve referenced in the specification. Exh. 1 at 11:40–57.

A plunger pump is a type of positive displacement pump. Positive displacement pumps are distinguished from a different type of pump, a centrifugal pump. Positive displacement pumps move fluids by trapping a fixed volume and forcing (displacing) that volume into the discharge piping. As discussed, plunger pumps do this by using a crankshaft to drive a plunger in a reciprocating (linear) fashion toward and away from the internal chamber in the housing.

Traditionally, fluid ends were made of carbon steel. Exh. 1 at 8:10–14. In the years leading up to the invention (before around 2014), the pressures then being used for hydraulic fracturing had decreased fluid end life to around 300–600 hours. These fluid ends would often fail due to fatigue cracking in areas of repetitive stress concentrations, such as the intersecting suction, plunger, access, and discharge bores.

Around the time of the invention, major manufacturers in the industry attempted to prevent these fatigue cracks by eliminating any grooves in their high-pressure fluid ends. This is because grooves cause stress risers (points of concentrated stress), serving as initiation points for cracks due to the cyclic fatigue associated with reciprocating pumps.

Another solution to fatigue cracking in these high stress areas was the use of stainless steel, which is generally not subject to stress corrosion cracking and thus provided a longer service life. Exh. 1 at 8:14–19. However, stainless steel is far more expensive than carbon steel. Further, due to their longer service life, problems in other areas—such as the suction and discharge bores—began to be the driving failure mechanism.

Washout failures are due to voids formed in or between the housing, packing, or other seals due to erosion from the highly abrasive solids (proppants) in the hydraulic fracturing fluid. These voids allow high pressure leaks, either requiring the fluid end to be removed from service for maintenance or damaging the fluid end beyond repair. After removal from service and shipping to a repair facility, the fluid end is repaired by building up weld material in the eroded areas of the housing, which entails both pre- and post-weld processing. However, these repairs themselves would suffer fatigue cracking when placed back into service.

Prior to Kerr's invention, the covers of the suction (or access) bore and discharge bore were generally sealed using seals placed in grooves cut in the outside diameter of the covers themselves. The same is true for the seals around any packing box enclosure.

It was known in the industry that fluid ends would suffer washout failures in these locations. What was not known, however, was what to do about it. Until Kerr's invention, no one in the industry suspected that the seal placement could improve the fluid end's resistance to washout failures. The general consensus in the industry was that two surfaces joined by a seal would experience equal wear. Thus, it was expected that no matter where the seals in these washout-prone areas were located, there would be equal wear on the housing and insert.

Accordingly, it was standard industry practice to place the seals in recesses in the insert piece—the covers or packing enclosures. This is because there was a large monetary incentive not to place such recesses in the fluid end housing. First, as previously noted, it was expected that grooves in the housing would concentrate stresses and lead to premature fatigue cracking. Second, it was recognized that machining recesses in covers or inserts, as opposed to the housing, was less sensitive to mistakes, because the housing was a much more expensive component. Any mistakes or errors in machining the housing itself could conceivably ruin the entire housing (at worst), or require expensive weld-over repairs (at best). A repaired housing was also less resistant to abrasion or fatigue cracking compared to a new housing, because the new weld material itself often served as areas of stress concentrations and resulting cracking once the fluid end was placed in operation. Further, such repairs took several days for a single fluid end. Such mistakes, occurring on multiple fluid ends over time, would result in a reduced manufacturing capacity. On the other hand, mistakes in machining recesses into a cover or insert would be relatively inexpensive and easy to cure, even if it required replacement of the piece.

The inventors recognized that the cyclic pressure loading of the fluid end caused the insert pieces to vibrate, and that this in turn caused the seals (set in recesses in the insert piece), in concert with abrasive fluids, to rub against and erode the housing. Exh. 1 at 7:43–49. By placing the recess and seal in the housing and sealing against a tubular stuffing box sleeve, the seal rubs against and erodes the sleeve and not the housing. *Id.* at 10:60–11:9, 11:64–12:23.

III. Agreed Constructions

The parties have agreed to the following term constructions:

U.S. Patent 10,591,070	
Terms for Construction (Claims Numbers)	**Agreed Constructions**
"at least a portion of the sleeve engages with the seal" (1, 6)	"any portion of the sleeve contacts the seal in the groove in the housing"
"packing seals" (1, 6, 22)	"compressible materials that, upon compression, form a seal between surfaces of machine parts designed to move relative to one another"
"fully block fluid flow" (4, 8)	Plain & Ordinary Meaning.
"horsepower" (14, 21)	Plain & Ordinary Meaning
"a second seal positioned with the second groove" (16)	"a second seal positioned within the second groove"
"a valve positioned with the first conduit" (17)	"a valve positioned within the first conduit"

IV. Disputed Claim Terms

A. Tubular Sleeve (Both parties)

Claims	Kerr's Proposed Construction	Defendants' Proposed Construction
1, 6	"open or hollow primarily cylindrical enclosure"	"open, substantially cylindrical-shaped stuffing box sleeve"

"Tubular sleeve" should be construed as an open or hollow primarily cylindrical enclosure. This is similar to Vulcan's proposed construction, except that it does not (1) improperly limit the purpose or function to only a stuffing box sleeve or (2) alter the invention in an attempt to make relevant otherwise *irrelevant* prior art.

The ordinary meaning of "tubular" is having the form of or consisting of a tube, which in turn is defined by Merriam-Webster as "a hollow elongated cylinder." *Tube*, Merriam-Webster.com Dictionary, Merriam-Webster, https://www.merriam-webster.com/dictionary/tube (Last accessed 13 Oct. 2020). The ordinary meaning of "sleeve," in the context used in the specification, is a tubular part designed to fit over another part. *See Sleeve*, Merriam-Webster.com Dictionary, Merriam-Webster, https://www.merriam-webster.com/dictionary/sleeve (Last accessed 13 Oct. 2020) (defining "sleeve" as something "designed to fit over another part). Thus, a person of ordinary skill in the art ("POSITA") would have understood the ordinary meaning of *tubular sleeve* as an open or hollow cylinder designed to fit over or enclose another part (i.e., an enclosure).

This meaning is consistent with the specification, which explains that embodiments of the tubular sleeve 254 are "open-cylinder-shaped." Exh.1 at 11:40–42, *see also* Fig. 11, 16, 19 (depicting sleeve 254 as a cylindrical enclosure). The specification further distinguishes between cylindrical components and components having other shapes. For example, inserts 106*a*' and 106*b*' in plug valve 100' (Fig. 2) are described as "segments of an open hollow **cylinder** instead of the inserts 106*a*, 106*b* in FIG. 1 that are segments of an open hollow **cone**. In other words, the **conical** surfaces in FIG. 1 are replaced here with **cylindrical** surfaces." *Id.* at 4:35–40. Thus, the claimed requirement of a *tubular* sleeve should be understood to specify a *cylindrical* sleeve, as distinguished from a conical sleeve or a sleeve of another shape.

Vulcan instead urges the Court to construe "tubular sleeve" to mean an "open, substantially cylinder-shaped 'stuffing box' sleeve." Vulcan's construction attempts to erase the specification's express distinction between the invention's cylindrical tubular sleeve and a conical sleeve. In Vulcan's petition for post-grant review filings before the PTAB, Vulcan improperly relies upon irrelevant art featuring conical sleeves. Exh. 2. Vulcan will no doubt argue here these conical sleeves are "substantially cylindrical." While the specification itself draws a hard line between cylindrical and conical shapes, and further describes every embodiment as cylindrical in some fashion, it describes a *single* embodiment as "substantially" cylindrical. *Compare* Exh. 1 at 11:40-41 ("FIG. 16 also depicts employing the open-cylinder-shaped stuffing box sleeve…") *with* Exh. 1 at 11:53-56 ("In yet other contemplated embodiments the stuffing box sleeve 254 can be modified to a construction combining a substantially cylindrical-shaped stuffing box…"). Rather than read the specification as a whole, as a POSITA would, Vulcan cherry picks a single embodiment reference to define the entire claim. With the specification describing a single embodiment as "substantially cylindrical" and all others as simply "cylindrical" or "a cylinder," a POSITA would understand the "tubular sleeve" to be *primarily* cylindrical. *See ICU Medical, Inc. v. Alaris Medical Systems, Inc.*, 558 F.3d 1368, 1375 (Fed. Cir. 2009) ("Indeed, the court should focus on how such a person would understand the claim term **after reading the entire patent**.") (emphasis added). This Court should reject Vulcan's attempt to sweep in irrelevant art by broadening "tubular sleeve" beyond what a POSITA would understand the term to mean.

Vulcan's additional gloss requiring the sleeve to be a "stuffing box sleeve" is superfluous. Although the specification refers to the sleeve as the stuffing box sleeve, the claims themselves merely require a tubular sleeve. This is because the sleeve's function is delineated by its relationship to the other claim limitations: it engages with a seal surrounding the second conduit

and encloses a plurality of packing seals and reciprocating plunger. Exh. 1 at Claims 1, 6, 22–24. Thus, there is no reason to import Vulcan's definition of "stuffing box" ("an enclosure containing seals to prevent leakage around a moving machine part") into *tubular sleeve* given that the claims themselves more precisely explain the sleeve's required function and position with respect to the seals and plunger. This superfluous construction is not harmless; using Vulcan's terminology could confuse the jury by creating an ambiguity with respect to whether the sleeve must be an enclosure *for* a stuffing box or is itself a stuffing box. Vulcan's superfluous construction is unnecessary and thus improper. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) (noting that claim construction "is not an obligatory exercise in redundancy").

The Court should construe "Tubular sleeve" to mean an "open or hollow primarily cylindrical enclosure."

B. Endless Groove (Both parties)

Claims	Kerr's Proposed Construction	Defendants' Proposed Construction
1, 5, 6, 15, 18	"a channel or recess without beginning or end"	"an annular/concentric channel or recess"

Vulcan's proposed construction fails to capture the defining aspect of the claim term, the *endless* nature of the groove, while also creating an additional limitation out of thin air. Vulcan cannot meet its burden of establishing that the specification includes a clear disavowal of claim scope in support of its construction. *See Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1306 (Fed. Cir. 2011) ("To disavow claim scope, the specification must contain 'expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.'"). Vulcan further weakened its proposed construction a month after proposing it—and only three days before the deadline to file opening briefs—when Vulcan abruptly changed its position to *simultaneously* propose a construction *and* argue that "endless groove" is indefinite. Of course, a

term cannot be indefinite *and* have a construction, thus Vulcan's indefiniteness challenge fails on its face.

Vulcan's "annular/concentric" limitation has no support in the claims, which merely recite an "endless groove" without any limitation as to the shape of the groove. The specification, which discusses an "endless groove" at 8:60 to 9:14, does not change the result. The "endless groove or recess 240" is described as being "characterized by a pair of parallel sidewalls joined by a base." There is no in-depth discussion of the groove being "annular" or ring-shaped or any other term that may suggest annular. *Id.* The specification merely states that sidewalls are joined by a base. Thus the invention claims an endless groove in all manner of shapes, including *but not limited to* concentric shapes.

Vulcan can only point to one referenced embodiment of the invention and to drawings contained in the specification, but neither are "clear disavowal[s] of claim scope." *Retractable Techs*, 653 F.3d at 1306. The specification itself notes that the drawings are "merely illustrative and not limiting of the contemplated embodiments," and thus are the exact opposite of a "disavowal of claim scope." Exh. 1 at 9:6-7. And the specification's single reference to an "annular groove" also fails to constitute a clear disavowal of claim scope. The specification describes numerous embodiments, among them: "The present invention is *also* directed to a fluid end assembly comprising … a seal positioned within an annular groove formed in the housing." Exh. 1 at 2:23-28. Even if this were the *only* embodiment of the endless groove, the Federal Circuit has "expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005). Moreover, beginning the sentence with "The present invention is also directed to" makes clear that the subsequent description is *not* a disavowal of claim scope.

See Cont'l Circuits LLC v. Intel Corp., 915 F.3d 788, 797 (Fed. Cir. 2019) ("[P]hrases such as 'one technique,' 'can be carried out,' and 'a way' indicate that using Probelec XB 7081 is only one method for making the invention and does not automatically lead to finding a clear disavowal of claim scope."). The specification even goes on to say, "*any shape* necessary to properly mount a desired seal is contemplated, whether the seal is elastomeric, spring, metal, and the like" may be used for the endless groove. Exh. 1 at 9:7-9 (emphasis added). The claimed invention does not limit the "endless groove" to an annular shape.

At the eleventh hour, nearly a month after the deadline to exchange claim constructions, Vulcan now says the "endless groove" is indefinite and that Vulcan's proposed construction is an "alternative." Exh. 3. In other words, Vulcan contends the term "endless groove" simultaneously has a definite meaning while also being indefinite. Not only is Vulcan's position nonsensical, but it is further belied by the fact that Vulcan participated in the claim construction process—by serving proposed constructions and conferring on them—for over a month without noticing the alleged indefinite nature of "endless groove." And even after the alleged indefinite nature had supposedly become clear, Vulcan still asks this Court to recognize its own proposed construction. Vulcan therefore cannot show that this claim term "read in light of the specification, fails to inform, with reasonably certainty, those skilled in the art about the scope of the invention" because Vulcan itself recognizes the term supports a definite construction, albeit one Kerr disputes. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014).

Vulcan pins its indefiniteness argument on the fact that a patent examiner assigned to a patent application from a different family than the '070 erroneously concluded that the word "endless" was indefinite. Of course, Vulcan ignores the fact that another patent examiner approved the '070 patent at issue in this case and had no indefiniteness concerns over the term "endless."

And the '070 examiner got it exactly right. The examiner for the unrelated patent stated that "endless" is an indefinite term because a *structure* cannot be endless. But the word "endless" modifies a groove within a structure, not the structure itself. Indeed, any child who has played with a hula hoop knows that a shape can be without a beginning or an end. While Kerr subsequently amended the unrelated patent application, it did not agree with the examiner's conclusion and made the amendment only to accelerate the patent's issuance. This inconsistent treatment of "endless groove" by different examiners is a great example of why the Federal Circuit has cautioned courts from using the prosecution history—here, from a different patent—to resolve claim construction disputes. *Cont'l Circuits LLC v. Intel Corp.*, 915 F.3d 788, 796 (Fed. Cir. 2019) ("We have cautioned, however, that 'because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.'").

Kerr asks this Court to construe "endless groove" as "a channel or recess without beginning or end." The specification makes clear throughout that "groove" refers to a "channel" or a "recess." *See, e.g.*, Exh. 1 at 10:5, 10: 18, 10:28, 11:4. While groove has a particular meaning in the art, "endless" has an obvious plain and ordinary meaning: without a beginning or an end. It cannot be more straightforward. This is especially true considering that the person of ordinary skill in this case would have significant experience or knowledge in the field of fluid end design and manufacturing. *See Source Search Techs., LLC v. LendingTree,* LLC, 588 F.3d 1063, 1077 (Fed. Cir. 2009) (noting that "this court measures indefiniteness according to an objective measure that recognizes artisans of ordinary skill are not mindless automatons") (quotations omitted).

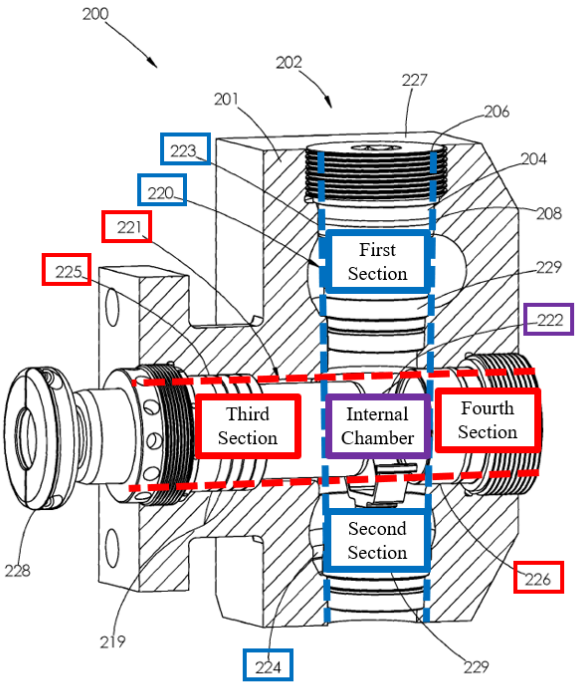
C. Therethrough (Both parties)

Claims	Kerr's Proposed Construction	Defendants' Proposed Construction

1, 6	"from one side or surface to the opposing side or surface"	"into (the housing)"

Therethrough is properly construed as "from one side or surface to the opposing side or surface."

The term "therethrough" appears only in claims 1 and 6, where it describes the first and second conduits extending therethrough the housing. The descriptions of these conduits in the specification starts with respect to the prior art (Fig. 9), which shows first conduit 220 (blue) and second conduit 221 (red) extending completely through housing 201, and intersecting to form internal chamber 222:



PRIOR ART
FIG. 9

Exh. 1 at 7:19–30; Fig. 9 (annotated above). First conduit 220 has first section 223 and second section 224 on opposite sides of internal chamber 222; second conduit 221 also has two sections, 225 and 226. These conduit sections "independently interconnect" internal chamber 222 to the fluid end's external surface. Thus, both first and second conduits extend from the fluid end's

external surface on one side through the housing and open to the opposite side. The reason such conduits extend completely through the housing is to enable construction, installation and maintenance of the internal components of the fluid end.

The specification next discusses these conduits with respect to the embodiment of Fig. 11. Manifold body 232 forms "interconnected bores or conduits" including a first conduit (also referenced as the discharge bore) 234. *Id.* at 8:27–48. The first conduit "defines an intake opening 231 formed opposite the discharge opening 235." *Id*. The second conduit is collectively formed by suction bore 247 and plunger bore 252. *Id*. at 8:27–48 and 10:4–9; see Fig. 11 (annotated) below. The prosecution history does not further define therethrough.

The proper construction—from one side or surface to the other—is also consistent with how a POSITA would understand therethrough. Therethrough is not a term of art. "Therethrough" is normally defined as simply "through" (it or that), and that is how a POSITA would understand it absent some reason to modify the definition. Of course, "through" means "in at one end, side, or surface and out at the other." This meaning is entirely consistent with the disclosure of the '070 Patent, which shows all conduits proceeding from one side of the housing, completely through the housing, and to the other side—not merely "into" the housing.

In addition to being contrary to the plain meaning of therethrough as well as its usage in the specification, Vulcan's proposed construction dispenses with the requirement that there actually be two separate conduits extending through the housing. Stating that a conduit extends into a housing is very different from stating that a conduit extends through a housing. Vulcan's construction has no basis in any intrinsic or extrinsic evidence and was clearly selected to enable Vulcan to shoehorn disclosures lacking the claimed conduits to read on the claims. For example, in the Y-bore fluid end of US patent 6,382,940, only the first conduit (suction/discharge) extends

through the housing. The plunger bore only has a single opening and only extends into the housing, not through it:

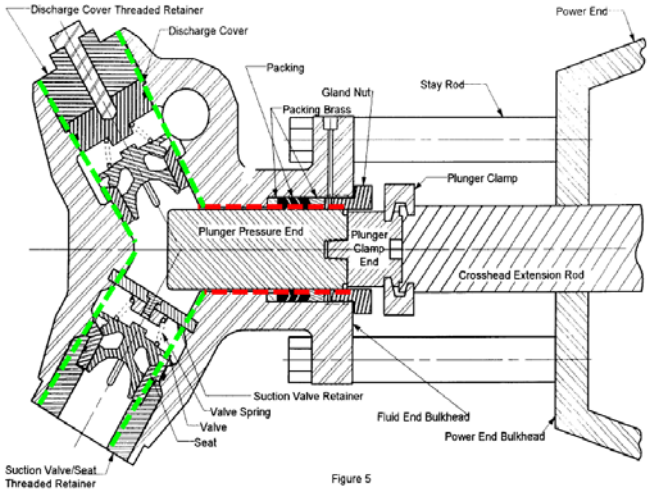


Figure 5

The Court should reject Vulcan's forced construction as being at odds with the disclosure of the '070 patent and the plain and ordinary meaning of *therethrough.*

D. Within the sleeve (Defendant's term)

Claims	Kerr's Proposed Construction	Defendants' Proposed Construction
1, 6	No construction necessary; plain and ordinary meaning applies.	"bounded by an inner surface of the sleeve"

The term "within the sleeve" is a term that jurors will readily understand given the context of the claim language. Claim 6 recites, *inter alia*, "a plurality of packing seals disposed within the sleeve." The specification discusses packing seals with respect to FIG. 9 (a prior art figure), stating that a plunger 228 "is disposed within a plurality of packing seals 219." *Id.* at 7:35–36. With respect to FIG. 17, the specification states, "the plunger 228 and packing seals 219 … may be disposed within the stuffing box sleeve 254."

Vulcan's proposed construction does not serve to make the claim term easier to understand. "Within the sleeve" is not a confusing term. Vulcan already seeks a construction on the term

"sleeve" so construing "within the sleeve" only serves to define the word "within." In drafting the patent claims, Kerr did not attempt to become its own lexicographer by using an unusual definition of the word "within." Nothing in the specification suggests Kerr employed "within" to mean anything other than "inside," a word jurors readily understand. Therefore, "within the sleeve" does not require a construction. *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1373 (Fed. Cir. 2004) (no construction is required for "ordinary, simple English words whose meaning is clear and unquestionable").

Vulcan's proposed construction also improperly injects an unrelated concept by using the term "bounded." The specification does not say anything about "bounded" sleeves. Vulcan has created the term out of whole cloth, which is entirely improper given that an item being "within" another item is not at all the same as an item being bound to another item.

There is no need to construe "within the sleeve" and there is certainly no basis to transform the term from describing a location inside a sleeve into a term requiring binding directly against the sleeve.

E. The seal is engaged with the outer surface of the sleeve (Defendant's term)

Claims	Kerr's Proposed Construction	Defendants' Proposed Construction
23	No construction necessary; plain and ordinary meaning applies.	"the seal in the groove in the housing contacts the outer surface of the sleeve"

Vulcan proposes a construction for the limitation "the seal is engaged with the outer surface of the sleeve" even though each word is easily understood by a juror and the combination of words does not create an unusual meaning. Not only is the claim language easily understood, but Vulcan's proposed construction does not functionally differ from the original claim language. "The seal is engaged with the" does not technically differ from "the seal in the groove in the housing contacts the." Therefore there is no dispute about the claim's technical meaning. Instead, Vulcan is

wordsmithing the patent's language post-issuance. Claim construction is improper where there is no dispute about the *technical* scope of the claim language. *C.f. U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("Claim construction is a matter of resolution **of disputed meanings and technical scope**, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement.") (emphasis added); *see also U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("[Claim construction] is not an obligatory exercise in redundancy."). Vulcan seeks only to increase the number of terms with which the jury will be presented, but that is not a proper basis to wordsmith and deviate from the plain and ordinary meaning of straightforward claim language about which there is no technical dispute.

F. Seal (Defendant's term)

Claims	Kerr's Proposed Construction	Defendants' Proposed Construction
1, 6, 11, 16, 19, and 23	No construction necessary; plain and ordinary meaning applies.	"annular component of elastomeric, spring, metal, or similar material that presses tightly against a surface upon axial and/or radial compression"

This Court does not need to construe the term "seal," a non-technical term that lay jurors will readily understand. No construction is necessary. *Chef Am.*, 358 F.3d at 1373 (no construction is required for "ordinary, simple English words whose meaning is clear and unquestionable"); *ConocoPhillips Co. v. In-Depth Compressive Seismic, Inc.*, 2019 WL1877374, at *5 (S.D. Tex. Apr. 26, 2019) (holding that claim term was "sufficiently clear to make even resort to a dictionary unnecessary" where "[n]either party has argued the existence of a customary meaning in the art that differs from or contradicts the plain and ordinary meaning stated by the plaintiff" and nothing "in either the specification or the prosecution history clearly support the defendant's contention that the plaintiff intended to use the term [] in a manner other than according to its plain and ordinary meaning").

The specification mentions several different types of seals that can be used in various embodiments. For example, although radial seals are illustrated in certain drawing figures, alternative embodiments may employ other types of constructions such as "axial seals, crush seals, and the like." Nowhere does the specification limit the seal to an "annular" construction, as proposed by Defendants. While annular seals are described in the patent, such a description is only present when discussing prior art. Exh. 1 at 5:10–17, describing the use of "annular seal" 140 with respect to prior art (*see Id.* at 2:60–67, describing Figures 1 through 3 as being "previously attempted solutions").

G. Closure element (Defendant's term)

Claims	Kerr's Proposed Construction	Defendants' Proposed Construction
7, 8	"a component that is attached or otherwise joined to a housing to help provide a fluid seal between the housing and the component, such as but not limited to the discharge plug, suction plug, discharge valve seat, suction valve seat, stuffing box sleeve, discharge flange, suction manifold, and the like"	"a component that is attached or otherwise joined to a housing to provide a fluid seal between the housing and the component"

While "closure element" is not defined in the specification, "closure" is defined. From 11:67 to 12:24, the '070 Patent lays out multiple definitions for the term "closure." Vulcan, however, has latched onto a single definition from the specification to the exclusion of all others. *See* Exh. 1 at 11:67-12:4. During the meet and confer process, Kerr indicated it would agree to Vulcan's proposed construction if Vulcan would agree to fold in language from the other "closure" definitions in order to provide the jury with a more complete definition that reflected a POSITA's understanding after reviewing the patent as a whole. Vulcan rejected the proposal.

Vulcan points to the following language in the specification to support its proposed construction: "For purposes of this description and meaning of the claims the term 'closure' means

a component that is attached or otherwise joined to the body to provide a high-pressure fluid seal between the body and the closure." Exh. 1 at 11:67-12:4. Vulcan omits the next twelve lines of the specification expounding on the definition of "closure": "In some embodiments such as the described valve embodiments 'closure' encompasses a moving component that is selectively positionable to control the fluid flow through the valve, such as the plug described and other components such as but not limited to a wedge, a clapper, a ball, a segment, and the like. In some embodiments such as the described fluid end embodiments 'closure' encompasses nonmoving components joined to the body to seal an opening such as but not limited to the discharge plug, suction plug, discharge valve seat, suction valve seat, stuffing box sleeve, discharge flange, suction manifold, and the like." *Id.* at 12:4-12:16.

Vulcan's proposed construction should be combined with additional language from the specification so it accurately reflects all three definitions of "closure." Claim terms must be construed in light of the entire patent rather than individual portions read in isolation. *See ICU Medical, Inc. v. Alaris Medical Systems, Inc.*, 558 F.3d 1368, 1375 (Fed. Cir. 2009) ("Indeed, the court should focus on how such a person would understand the claim term **after reading the entire patent**.") (emphasis added). When read in isolation, Vulcan's proposed construction could create the misimpression that the closure element is the mechanism that creates the seal with the housing by stating, "to provide a high-pressure fluid seal between the body and the closure." The remaining definitions make clear that the closure element assists *other* elements to create the seal, which would be clear to a POSITA after reading the remaining definitions in the specification. Rather than offer a cumbersome and lengthy construction restating all three definitions, Kerr proposes that the word "help" be added before the word "provide" and the list of exemplar embodiments

from the third "closure" definition be included so that the relationship between the closure element and the seal is clearer.

In sum, Kerr asks the Court to adopt the following construction for "closure element": "a component that is attached or otherwise joined to a housing to help provide a fluid seal between the housing and the component, such as but not limited to the discharge plug, suction plug, discharge valve seat, suction valve seat, stuffing box sleeve, discharge flange, suction manifold, and the like."

H. Fluid end assembly (Defendant's term)

Claims	Kerr's Proposed Construction	Defendants' Proposed Construction
1 – 24	No construction necessary; plain and ordinary meaning applies.	This clause is part of the preamble and gives no patentable weight to the claimed invention

Vulcan attempts to use the claim construction process as a vehicle to obtain what amounts to an advisory opinion. Kerr's claim charts and infringement contentions do not rely on the term "fluid end assembly" and Kerr is not seeking a construction for "fluid end assembly." Yet Vulcan asks this Court for a ruling that "fluid end assembly" has no patentable weight. There is no reason for the Court to make such a ruling, therefore Vulcan's request is entirely improper. *In re CSB-Sys. Int'l, Inc.*, 832 F.3d 1335, 1342–43 (Fed. Cir. 2016) ("Without a 'fundamental dispute regarding the scope' of this term, construction is not necessary."); *EmeraChem Holdings, LLC v. Volkswagen Group of Am., Inc.*, 714 Fed. Appx. 995, 996 (Fed. Cir. 2017) ("Claim terms, however, are construed to resolve a 'controversy, and only to the extent necessary to resolve the controversy.'").

V. Conclusion

Kerr respectfully requests that the Court reject Defendants' proposed constructions and adopt Kerr's proposed constructions.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that all counsel of record deemed to have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system.

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